Colony of Seychelles.

ANNUAL REPORT

ON THE

DEPARTMENT OF AGRICULTURE

FOR THE

YEAR 1926.

Published by Command of His Excellency the Governor.

PRINTED BY THE GOVERNMENT PRINTER,
AT THE GOVERNMENT PRINTING OFFICE,
Victoria—Mahé, Seychelles.

1927.

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Chapter I.

General Remarks.

The following is a narration of the principal work performed by the Agricultural Department during the year under review.

1. Running a Botanic Station and distributing economic plants.
2. Upkeeping several small gardens in the town of Victoria.
3. Reafforesting the Crown lands above the Niol reservoir.
4. Exploiting a small timber reserve at Félicité and other Crown lands.
5. Advising planters and investigating diseases affecting coconut palms. 75 estates were visited during the year in this connection.
6. Examining and reporting on applications for crop privilege and mortgage loans. 19 estates were visited and loans amounting to Rs 105,566 were granted.
7. Visiting outlying islands in company with Dr Christie and Mr James Hornell in connection with examination of the mineral and fishery resources of the Colony.
8. Examining and reporting on applications made by landed proprietors for the cutting of timber alongside river reserves. There were 376 such applications during the period under review.
9. Running a small excise department in connection with the sale of fermented cane juice and the distillation of essential oils.
10. Working a licensing board in connection with the sale and purchase of licensable produce.
11. Running a small agricultural laboratory which has been removed to the Victoria Hospital at the end of the year.
12. The Director acted as J. P. in the Praslin district during the absence of the Officers in charge which occurred twice during the year.

Chapter II.

Expenditure, Receipt, Sale of Plants.

	Rs	c.
Receipts from Plantations	472	27
Sale of timber and firewood from Crown Lands ...	4,527	50
Rent of Crown Lands and buildings	26,322	81
Total Receipts ...	31,322	58

The total Expenditure under Agriculture and Crown Lands amounted to Rs 17,925.44 as compared with Rs 14,795.44 in 1925.

Chapter III.

The Vanilla Industry.

The export of vanilla beans during 1926 amounted to 551 kilogs as compared with 2,466 kilogs for 1925, 1,429 kilogs for 1924 and 692 kilogs for 1923.

The weather was not favourable for the proper flowering of the orchid, more rain than was necessary having fallen at the time of flowering (July, August, September 1925). The prospects for the year 1927 are better, the climatic conditions having been more favourable. Vanilla is however not grown so extensively in Mahé as it was formerly, the industry having been replaced by that of the distillation of essential oils which pays better. The culture of vanilla is mostly relegated to Praslin where essential oils are not manufactured at present.

Chapter IV.

The Coconut Industry.

The coconut crop for 1926 largely exceeded the record crop for 1925. Coprah was exported to the amount of 5,416 tons as compared with 4,600 in 1925. Not so long ago Seychelles was producing only 3,000 tons of coprah per annum.

The crop for the last 4 years may be apportioned as follows .—

Nuts	1923	1924	1925	1926
Nuts converted into coprah ..	24,325,000	26,705,000	32,200,000	37,912,000
„ „ oil ...	619,200	377,884	259,992	153,960
„ „ soap ...	135,842	16,975	...	...
„ exported as such ...	208,925	177,884	61,000	83,900
„ consumed locally ...	4,000,000	4,000,000	4,000,000	4,000,000
	29,288,967	31,277,743	36,520,992	42,149,860

There is no reason why the steady increase in coconut production should not continue as planters are all more alive to the necessity of trenching and manuring their estates. On several estates the plantations have been extended and these extensions will soon come into bearing. At Praslin even planters of the labour class are beginning to keep abreast of the times. The only drawback during the year was the attack of scale insects and other diseases which are not yet kept in check as much as they should be, not to speak of rats which levy a tax on the crop which seems to amount to 10o/o at least.

The governing factor in good coconut crop production is however a sufficient rainfall. Years of drought cannot be made good by manuring, the manures remaining undecomposed in the sunbaked lateritic soils. Only when the rainfall is plentiful and averaging not less than 90 to 100 inches per annum are these soils porous and suitable for coconuts. Otherwise the roots of the palms cannot expand through the hardpan and the attack of numerous insects and fungi becomes at once more severe on the half dead leaves and stems. These diseases having spread all over the colony there is no question that they can only be combated by adopting better cultural methods and by spreadiug natural parasites instead of applying the very costly methods of spraying or dusting with chemicals.

Great activity was shown by the three inspectors of plantations who are almost daily going round all plantations and advising planters to the best of their knowledge. It is hoped that one or more of these inspectors will soon be able to acquire more technical knowledge especially in Mycology when the Research Institute of Amani will be opened at our doors. New methods of combating insect pests and fungus diseases in the tropics are urgently required.

Chapter V.

The Essential Oil Industry.

The quantity of cinnamon leaf oil exported during 1926 exceeded the exports for the previous years.

	1924.	1925.	1926.
Cinnamon leaf oil ...	32,216 litres	42,241 litres.	44,723 litres.
Cinnamon bark oil ...	140 „	19 „	...
Patchouli oil ...	1,025 „	551 „	1,305 „
Basilic oil ...	144 „	69 „	111 „
Lemon grass oil ...	79 „	71 „	195 „
Clove oil ...	1,025 „	3,800 „	...

The production of patchouli oil is also progressing satisfactorily, the market price of this article having increased considerably. This industry is however in the hands of big landowners only who are themselves handicapped by dearth of capital. Patchouli succeeds exceedingly well here but necessitates a considerable amount of cultivation and manuring. It is a most paying crop when its requirements are satisfied. Without manure and irrigation in dry weather it is useless to grow patchouli but a return of Rs 500 per acre is easy to obtain when proper attention is given to it. The carefully dried leaves without fermentation can be stored a long time, and yields of 50 to 60 litres of oil per ton of dry leaves are obtained.

The essential oil from ginger roots made at Barbarons was favourably reported upon by the authorities of the Imperial Institute. The plants are not however sufficiently propagated as yet to start distillation on a large scale. Attempts are being made to export the roots as such but some difficulty is experienced The roots were found to possess a good pungency on examination at the Imperial Institute but they appeared smaller, softer and not so bold as the West Indian ginger roots. It has been suggested by the Director of the Imperial Institute that it was the lack of food in the soil or inferior stock which accounted for the deficient qualities of Seychelles ginger. Newly introduced plants from Cochin are being experimented with. The lack of food elements in the soil can certainly be made good by proper manuring with chemicals but it appears to me that this is a striking example of the extent to which the soil in Seychelles has been rendered sterile by cassava planting, bush fires and erosion. Ginger is grown preferably in newly cleared virgin soil but this is non-existant in the Colony and the planters are paying now for the mistakes made by their ancestors. Fortunately areas can easily be re-afforested in this Colony with some trouble and the best way of restoring the ancient fertility of our granitic grounds is to plant them all over with a tall leguminous tree like Albizzia moluccana with intercalary undergrowth of cocoplum and allow the land to remain wooded for 20 years. In this case the physical properties of the soil are restored. It remains to give it the deficient chemical elements which is a simple matter. I do not think that our soil will ever become favourable to crops like ginger if their physical properties as well as their chemical composition are not modified. Owners of distilleries can of course use their refuse and provide in the long run the soil with necessary humus instead of re-afforesting part of their estates. It is however important for the Colony that the wooded area should be extended either as reserves of fuel or as means of combating effectively the empoverishment of the soil and its inevitable accompaniment of diseases and pests. I am of opinion that a certain proportion of wooded land in each locality should be strictly reserved.

From Palmarosa grass seeds introduced from various parts of India in 1924 two different grasses were obtained and are now being grown in the Colony. One is the true palmarosa grass (Motia) and the other the ginger grass (Sofia). One grass is hardly distinguishable from the other in appearance, except that ginger grass is perhaps stronger and more luxuriant than palmarosa, the leaves are also having a different smell, that of palmarosa leaves being suggestive of citronella while ginger grass have a less pungent smell suggestive of coaltar products. On several estates, the plants propagated turned out to be the palmarosa grass entirely whilst on another estate the plant cultivated was found to consist only of ginger grass. As one oil (ginger grass) is much less valuable than the other and contains 40—60 o/o geraniol instead of 90 o/o (palmarosa), the planters will have to become acquainted with the two different grasses before propagating them. Palmarosa grass is more drought resistant than other perfume plants such as patchouli, which has also to be heavily manured. If the latter plants are more likely to succeed in the hands of experienced planters palmarosa is more adapted to small settlers who have little capital to spend on manures.

It has been thought desirable to have in reserve various other plants, such as peppermint, lemon grass, citronellas (Ceylon and Java types) Ylang Ylang &c., in order to be allowed to bridge over times of depression in the market price for our patchouli oil. However our principal oil, cinnamon leaf oil which is exported to the amount of 50,000 litres per annum although suffering from the prevailing low prices is still produced on a great scale ; this plant, unlike all the others, is a jungle plant of extremely hardy growth and better adapted than any other perfume plant to the climate and soil of this colony.

Chapter VI.

The Rubber Enterprise.

14,788 lbs of rubber were exported during the year as compared with 10,895 lbs in 1925. There are very few estates left in the colony where Para rubber trees are still grown. All the others have sacrificed them as fuel for essential oil distilleries. The high prices obtained in 1925 have been falling off rapidly but rubber is produced here at such a low price that even at a selling price of one shilling a lb on the London market, the few planters who have kept their plantations in order are satisfied with the result of their enterprise.

Chapter VII.

Insect Notes.

During the year under review much apprehension was felt regarding the occurrence of scale insects on coconut palms. It was thought by many planters that this attack of scale insects was a new one. A sketch of the whole island (Mahé) was however drawn showing the infested areas and it was found that there was hardly any estate in Mahé where the scale

insects did not occur. This means that they have been at work for some time all over the colony. The insects causing trouble are mainly Pinnaspis buxi and Ischnaspis filiformis. On poor soil, and under unfavourable weather conditions, the attack is severe and lasts for some years. Under better conditions the coconut palms are more resistant and the insects disappear as suddenly as they have appeared. The main remedy therefore lies in the improvement of the soil conditions and this is being carried out by most planters. Fungous parasites are also helping in keeping down these two scale insects. A Septobasidium was identified at the Imperial Bureau of Mycology as being parasitic on Ischnaspis filiformis although this fungus is not regarded elsewhere as effecting an important control of scale insects.

Pinnaspis buxi also occurs in Seychelles on Heliconia Dracoena and Pandanus while Ischnaspis filiformis is a common parasite on coffee and Stachytarpheta. It was recorded on coffee in Seychelles over 15 years ago.

Other scale insects which at one time were very common on coconut palms and causing great damage such as Aspidiotus ficus, Aspidiotus palmæ, Chrysomphalus ansei Chrysomphalus dictyospermi, Locanium tesselatum have not altogether disappeared and many islands of the archipelago are still infested with them. The damage they cause is however not so strikingly visible from a distance as that of Pinnaspis buxi and Ischnaspis filiformis but except Lecanium tesselatum which is parasitised by Cephalosporium lecanii they are quite as harmful, they being more helped by ants than the latter in their work of destruction. Chrysomphalus ansei was identified by the Director of the Imperial Bureau of Entomology on leaves of Bois d'ciseau (Tethrantera Laurifolia). Fortunately this tree is very seldom found in the Colony growing side by side with coconut palms. Another scale insect Coccus elongatus Sign, not hitherto recorded was found attacking Bois Noir leaves (Albizzia lebbek).

Among other insects identified during the year at the Imperial Bureau of Entomology mention may be made of 2 lepidoptera.

Phytometra chalcytes attacking leaves and fruits of tomatoes.

Lamprosema indicata F. attacking leaves of peppermint.

Chapter VIII.

Mycological Notes.

A palmyrah palm growing in the Botanic Garden had a few heart leaves covered with large discoloured patches suggestive of bud rot but the specimens forwarded to the Imperial Bureau of Mycology showed that the only fungi present were Phyllosticta sp. and Septoria cocoes Petch. No Phytophthora was found and the palm recovered although it is well known that Palmyrah are more susceptible to bud rot than coconut palms.

Among other fungi identified during the year by the same bureau the following may be mentioned :—

1. A Septobasidium covering Ischnaspis scale insects on coconut leaves as already stated in the preceeding chapter.

2. Ganoderma lucidum on Cashew stems (Anacardia occidentalis). This fungus is capable of parasitic attack on palms according to Professor Ashby. It was also found on dead stumps of Parkia Roxburghii.

3. Polystictus occidentalis on Ylang Ylang stem, on Bois Noir (Albizzia Lebbek) and Spondias mangifera stumps. This appears to be a widely spread fungus in the colony but it is not recorded as being a definite root parasite elsewhere.

The climatic conditions of the Colony are so distinctly favourable to fungus growth that one can say that no stump after a tree is dying or cut down is not at once covered with the brackets of a fungus of some sort. Hence the necessity of identifying and studying our local parasites and of guarding ourselves against the eventual spread of a dangerous fungoid disease. There is much ground still to cover in this direction but it is hoped that a trained assistant will be forthcoming some day.

Chapter IX.

Fisheries.

The exports from the Outlying islands amounted to :—

	Quantity.	Declared value.
Guano ...	6,935 tons	Rs 200,388
Tortoise shell ...	884,495 kilos	„ 47,785
Turtle shell ...	956 „	„ 640
Calipee ...	4,079 „	„ 11,308
Salt fish ...	2,500 „	„ 500
Turtle oil ...	2,250 litres	„ 1,125

During the year Mr James Hornell the well known oceanographer visited the archipelago and gave demonstrations on the various methods of salting fish. It became at once evident that the methods in vogue were faulty. Detailed information was published by Mr Hornell in the Agricultural Bulletin and the methods of curing have since considerably improved.

The great mistake was that the fish was not cured immediately after catching with the result that the blood coagulated in the body and that the fish was slightly tainted by exposure to the sun before curing. The quality of the salt used left also much to be desired.

Several trips were made to the remotest islands of the archipelago and to the edge of the Mahé banks to ascertain the fish population. Although Mr Hornell's report has not yet been received, it was considered that there was abundance of fish in many places and that nothing should prevent the development of a fish curing industry with the markets of Kenya, Mauritius and Bombay at our doors.

Migratory fish were caught in presence of Mr Hornell on several occasions and much advice was obtained from him as regards the best methods of dealing with hauls of thousand of fish which cannot find a ready sale on the local market. The price of fresh fish often goes down to 2 or 3 cents a lb and more advantage should be taken of such a cheap raw material for the production of salt fish on a greater scale.

Already the local salt fish is much better in taste and appearance and this is due entirely to Mr Hornell's incessant activity in showing and demonstrating to our local fishermen the best methods of curing fish. His teaching has not fallen into deaf ears.

Dearth of capital will of course always be a handicap to that industry as well as to many others. It is impossible to go to the edge of the Mahé bank, 60 miles away without a boat of good size as fish has to be cured on board. There are few fishermen who can afford to purchase or build vessels of the right size. Besides there are very few months in the year during which small vessels can reach the far off banks, the weather conditions being often unfavourable. Nothing however prevents the coast trading vessels of our port from devoting a few months of the year to fishing operations, if the industry is going to pay.

Fishing on cooperative lines in Seychelles seems to be premature: the fishermen are incapable of managing such societies, being still too ignorant and suspicious.

Chapter X.

Mineral Resources.

Advantage was taken by the Government of this Colony of the passage of Dr W. A. K. Christie of India on his way on leave to S. Africa in April 1926 for the investigation of certain Bauxites which were known to occur in Seychelles and favourably reported on by Max Bauer who received specimens from Dr Brauer at the time when the latter visited the archipelago as a member of the Valdivia expedition in 1899.

Dr Christie stayed 4 weeks in the Colony and visited nearly all the granitic islands of the archipelago besides Mahé which was examined from one end to the other. No laterite of commercial value (bauxite) was found, our laterite being mostly secondary or detrital laterite containing a much too high percentage of silica and iron for commercial purposes.

Although Dr Christie's investigations have not yet been published the foregoing conclusion is taken from a preliminary report of the latter to His Excellency the Governor who was so instrumental in securing the services of so high an authority as Dr Christie without going into the expenses of a regular geological survey.

All our rocks, granites, syenites, dolerites, basalt, &c., decompose into laterites but as coarse grained granites predominate all over the Colony and contain a high percentage of undecomposed quartz, it appears that the composition and texture of our main rocks are a handicap towards the formation of good primary bauxite which is a variety of laterite from which quartz (silica) and iron have been eliminated.

It also appears that our topography and climate are unfavourable for the formation of good bauxite in situ as we have no pronounced alterations of dry and wet seasons, no elevated table land with infiltrating water to remain for long periods of time in contact with the rock.

There are here and there accumulations of laterite on the road sides which appear free from crystalised quartz (silica) but these sorts of dykes are of no importance and are found in patches alternating with patches of laterites containing a high percentage of undecomposed quartz.

On several occasions the attention of this department was called to the presence of bauxite in the colony and specimens were examined from time to time at the Imperial Institute and in the small local laboratory. Other samples were also examined by Mr W. F. Stephens. All these samples were found to contain too little aluminous material to classify them as bauxites. But the attention of geologists was on so many occasions called to the probability of bauxite occurring in the colony, after the publication of Max Bauer's report, that it was thought advisable to clear up the question once for all with the help of a competent authority. It is most useful that an expert like Dr Christie visited the colony on his way to S. Africa and that he will be able to give us the results of his survey which will have an importannt bearing on this and other kindred questions.

Chapter XI.

Crown Lands.

The Crown Lands of the Colony are all leased, including the mountain forests acquired in 1910 above the Niol waterworks. It has been decided after the expiry, in November 1928, of the regrettable lease in question never to lease again these wooded areas in which the rivers flowing into Victoria, Beau Vallon, Bel Ombre and Port Glaud take their rise. The lease was made for the exploitation of cinnamon leaves and bark by the lessees and as 50 o/o of the jungle consisted of cinnamon trees, the result is that this area has been much denuded. We have now to face a greater amount of work of weeding and replanting and an extra number of labourers have been engaged for that purpose at the time of writing (March 1927).

Another piece of land 160 acres rising to 2,500 feet elevation and wedged in between two sections of the mountain reserves was acquired for Rs 8000. This piece of land is still wooded although the old capucin trees (Northea Seychellana) have nearly all been cut down long ago. But the soil is still covered with a deep layer of humus under the canopy of a thick jungle. Such a good opportunity was seized to extend the forest areas on the mountain summits above the town of Victoria.

The block reserved by Government now extends over 17,000 acres. In this block the following plants were set out during the year besides the work of clearing, weeding and patrolling the forests and the expenses incurred amounted to Rs 1,284.53.

261 Agati (Adenanthera pavonina).
52 Benjoin (Terminalia benjoin).
1500 Cedars (Casuarina equisetifolia).
500 Eucalyptus tereticornis.
5000 Cocoplum (Chrysobolanus icaco).
650 Areca nut palms.
9 Parkia Roxburghii.
200 Gum Copal (Trachylobium verrucosum).
25 Bois Rouge (Wormia ferruginea).

At the Botanic Gardens and at the Hospital grounds, Victoria, the following seedlings were planted out :—

40 Gayac (Afzelia bijuga).
190 Eucalyptus terreticornis.
173 Sandoricum radiatum.
35 Chalmoogra (Hydnocarpus Wrightiana).
17 Parkia Roxburghii.
44 Areca nut palms.
125 Fruit trees (mostly avocado pear, mangoes, rambutam, grape vines &c.

At Félicité the timber reserve is nearing its end : 29,058 current feet of planks and madriers and 242½ cords of firewood were made by the lessees during the year, under Government control. The Government share (⅓rd timber and ½ firewood) was sold by auction to the Public or supplied to Public Works, the latter department having the option to purchase the lessee's share as well.

A little timber and firewood was also made under the contract system near the Police Station at Anse Boudin, Praslin and the net proceed of the operation amounted to Rs 128.70.

Chapter XII.

Meteorological Notes.

The following observations are recorded with a view of showing the beneficial effects of rains in the crops of coconuts, vanilla and essential oils. They are taken from the registers of the Port Office where observations are made regularly; the Governments of India and Mauritius contributing towards the expenses of making them.

It will thus be seen that the rainfall in 1926 was below the average and amounted to 83·07 inches while in 1925 rain fell to the amount of 134·29 inches. This means a shortage of 50 inches for 1926 as compared with the preceeding year and such a great difference will no doubt fall heavily on the crops for next year.

Chapter XIII.

Meteorological Returns.

Year 1924.

Mean Barometric pressure	29·998
Mean temperature	80·27
Mean Cloud amount	5·7
Total rainfall	98·29
Mean rainfall	8·19
Mean maximum temperature	82.4
Mean minimum do	77·2

Year 1925.

Mean Barometric pressure	30·071
Mean temperature	80·8
Mean cloud amount	5·6
Total rainfall	134·29
Mean rainfall	11·19
Mean maximum temperature	82·5
Mean minimun do	78·1

Year 1926.

Mean Barometric pressure	30·052
Mean temperature	81·08
Mean cloud amount	5·8
Total rainfall	83·87
Mean rainfall	6·99
Mean maximum temperature	82·4
Mean minimum do	76·3

Chapter XIV.

Excise Returns.

1. The total area under sugar cane cultivation for which licence of Rs 250 under Ordinance No. 15 of 1917 is required, amounted to 33 arpents, 9/10ths and 2,875 square feet.

	Arpents.	Square feet.
North Mahé and Central District	18 7/10ths	1540
South Mahé District	12	1338
La Digue Island	6/10ths	2578
Praslin Island	2 5/10ths	1962

compared to 38 arpents 2/10ths and 4236 feet in 1925.

2. The number of bacca mills registered during the year for which a fee of Rs 100 has to be paid amounted to 19 compared to 26 in 1925.

3. The licences issued to retailers of bacca amounted to 27 compared to 38 in 1925.

4. The essential oil distilleries licences numbered 37 compared to 42 in 1925.

B.—The Revenue derived from taxes, licences etc., amounted to :—

Sugar cane plantations	Rs	8,532 50
Bacca mills	,,	1,900 00
Bacca shops (Rs 180 p.a.)	,,	4,860 00
Essential oil distilleries	,,	2,220 00
Tenders for bacca licences	,,	9,040 00
Total Receipts		26,552 50

P. R. DUPONT,
Director of Agriculture

30th March 1927.


MAY 30
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SEYCHELLES


1927